

1 CLAIMS

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3 What is claimed is:

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5 1. A method for mitigating the deposition of wax on production tubing walls, the  
6 method comprising:

7 positioning at least one ultrasonic frequency generating device adjacent the

8 production tubing walls; and

9 producing at least one ultrasonic frequency thereby disintegrating the wax and  
10 inhibiting the wax from attaching to the production tubing walls.

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12 2. The method of claim 1 and further comprising:

13 producing three predetermined frequencies, the frequencies being a first  
14 frequency, a second frequency, and a third frequency.

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16 3. The method of claim 1 wherein the three frequencies range between  
17 approximately ten (10) KHz and approximately five hundred (500) KHz.

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19 4. The method of claim 2 and further comprising:

20 producing the first frequency;

21 vibrating the production tubing; and

22 inhibiting the wax from depositing on the production tubing walls.

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24 5. The method of claim 2 and further comprising:

25 producing the second frequency; and

26 breaking the bonds adhering the wax molecules together thereby disintegrating  
27 the wax into particles.

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29 6. The method of claim 2 and further comprising:

30 producing the third frequency;

31 reducing the long chained alkanes of the wax molecules thereby reducing the  
32 wax into smaller molecules.

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- 1     7.     The method of claim 2 and further comprising:  
2             generating all three predetermined frequencies simultaneously.  
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- 4     8.     The method of claim 1 and further comprising:  
5             determining the optimal frequencies with a variable frequency device.  
6
- 7     9.     A system for mitigating the deposition of wax on production tubing walls, the  
8     system comprising:  
9             at least one ultrasonic frequency generating device adjacent the production  
10            tubing walls; and  
11            at least one ultrasonic frequency generated by the generating device thereby  
12            disintegrating the wax and inhibiting the wax from attaching to the  
13            production tubing walls.  
14
- 15    10.    The system of claim 9 wherein three predetermined frequencies are generated.  
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- 17    11.    The system of claim 9 wherein the three frequencies range between  
18    approximately ten (10) KHz and approximately five hundred (500) KHz.  
19
- 20    12.    The system of claim 10 wherein the first frequency is approximately equal to  
21    the characteristic frequency of the production tubing thereby vibrating the production  
22    tubing and inhibiting the wax from depositing on the production tubing walls.  
23
- 24    13.    The system of claim 10 wherein the second frequency has a frequency  
25    sufficient to disintegrate the wax into particles by breaking the bonds which cause the  
26    wax molecules to adhere together.  
27
- 28    14.    The system of claim 10 wherein the third frequency has a frequency sufficient  
29    to break the bonds of the wax molecules so that the long chained alkanes are broken  
30    down into smaller molecules.  
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- 32    15.    The system of claim 10 and further comprising:  
33            generating all three predetermined frequencies simultaneously.

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2 16. The system of claim 9 and further comprising:

3 a variable frequency device for determining the optimum frequencies.

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